

(12) United States Patent Whipple

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(54) ARTIFICIAL DISC

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(58) Field of Classification Search

See application file for complete search history.

(56)References Cited

U.S. PATENT DOCUMENTS

4,024,588	A	5/1977	Janssen et al.
5,258,031	A	11/1993	Salib
5,556,431	A	9/1996	Buttner-Janz
5,595,563	A	1/1997	Moisdon et al.
5,645,596	Α	7/1997	Kim et al.
5,674,296	Α	10/1997	Bryan et al.
6,146,421	A	11/2000	Gordon et al.
7,637,955	B2	12/2009	Marik et al.
8,021,428	B2	9/2011	Bartish et al.
8,211,179	B2	7/2012	Molz et al.
8,562,682	B2	10/2013	Gill et al.
8,679,182	B2	3/2014	Ferree et al.
8,721,724	B2	5/2014	Lechmann et al.

8,784,492	B2	7/2014	Ferree et al.
8,961,608	B2	2/2015	Zubok et al.
2005/0187633	A1	8/2005	Ferree
2006/0079897	A1	4/2006	Harrison et al.
2007/0050030	A1*	3/2007	Kim A61B 17/7059
			623/17.11
2007/0135923	A1	6/2007	Peterman et al.
2010/0234954	A1*	9/2010	Justis A61F 2/4425
			623/17.12
2010/0298939	A1	11/2010	Delfosse et al.
2012/0109306	A1	5/2012	Jacob et al.

FOREIGN PATENT DOCUMENTS

CN	103479451	1/2014
CN	203749650	8/2014
JP	03275055	12/1991

^{*} cited by examiner

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(57)ABSTRACT

An improved artificial disc has a superior and inferior member. The superior member has an upper body portion and a flange portion for positioning and attachment to an upper vertebral body. The inferior member has a lower body portion and a flange portion for positioning and attachment to a lower vertebral body. The upper body portion and the lower body portions, when positioned in a disc space between the upper and lower vertebral bodies and affixed to a respective vertebral body at the flange portion, are independently movable relative to the other along complimentary bearing surfaces on each of the superior and inferior members. The complimentary bearing surfaces are self-aligned by a magnetic attraction force generated by at least one first permanent magnet in either the inferior or superior member.

16 Claims, 10 Drawing Sheets

